SWITCHABLE LATCHING-TYPE FARADAY ROTATOR

Qiangsheng Xiang

Gang Huang

Xiangzhi Lin

ABSTRACT

[0047] The present invention relates to the use of optimized magnet design, magnetic circuit design and wire coil design to improve latching reliability and reduce driving current for the switchable Faraday rotator devices. The geometrical parameters of semi-hard magnet are optimized to produce maximal magnetic field at the location of magneto-optic crystal and hence improve latching reliability and reduce driving current. The wire coil is optimized in coil length, wire gauge, and number of turns to produce most efficient energy transfer and hence reduce driving current and driving voltage. To reduce magnetic energy loss, soft magnetic material is included to form a magnetic conductive close loop and further reduces driving current requirements.